

Table of Contents

List of Figures	xxviii
List of Acronyms and Abbreviations	xxix
Chapter 1 Introduction	1
1.1 Statement of Purpose and Need for the Action	1
1.2 Management of Pelagic Fisheries under the Pelagics FMP	5
1.2.1 NMFS	5
1.2.2 The Magnuson-Stevens Act and the Fishery Management Council	6
1.2.3 The Pelagics FMP	8
1.2.4 NEPA and ESA Compliance for the Pelagics FMP	14
1.2.4.1 NEPA and Council on Environmental Quality Regulations	14
1.2.4.2 NOAA's NEPA Guidelines	14
1.2.4.3 ESA Section 7 Requirements	15
1.2.4.4 Pelagics FMP NEPA Documents and BiOps	16
1.3 Fisheries Managed under the Pelagics FMP	25
1.3.1 Longline Fisheries	29
1.3.1.1 Hawaii-based Longline Fishery	29
1.3.1.2 American Samoa Longline Fishery	30
1.3.2 Handline Fisheries	31
1.3.3 Hawaii Pole-and-Line (Baitboat) Fishery	32
1.3.4 Troll Fisheries	32
1.4 West Coast-based Highly Migratory Species FMP Fisheries	33
1.5 Foreign and Non-FMP U.S. Fisheries	35
1.5.1 International Cooperation in Fisheries Conservation and Management in the Pacific Ocean	35
1.5.1.1 The International Legal Context	35
1.5.1.1.1 Food and Agriculture Organization (FAO) Compliance Agreement and the U.S. High Seas Fishing Compliance Act	35
1.5.1.1.2 UN Fish Stocks Agreement	36
1.5.1.1.3 FAO Code of Conduct	37
1.5.1.2 Regional Fisheries Conventions, Organizations and Treaties	37
1.5.1.2.1 Inter-American Tropical Tuna Commission	37
1.5.1.2.2 South Pacific Forum Fisheries Agency	38
1.5.1.2.3 South Pacific Tuna Treaty	38
1.5.1.2.4 Secretariat of the Pacific Community, Oceanic Fisheries Programme	39
1.5.1.2.5 Western and Central Pacific Tuna Convention	40
1.5.2 Landings of Foreign and Non-FMP U.S. Pelagic Fisheries in the Pacific Ocean	40
1.6 Permits, Licenses and Approvals Required for the Proposed Action	41

Chapter 2 Alternatives	43
2.1 Seabird Action Alternatives	43
2.1.1 Strategies to Accomplish the Seabird Action Objective	43
2.1.1.1 Reduce Frequency of Longline-Seabird Interactions	43
2.1.1.2 Reduce Consequences of Longline-Seabird Interactions	44
2.1.1.2.1 Seabird Handling Techniques	44
2.1.1.2.2 Protected Species Workshops	45
2.1.2 Criteria for Alternatives Evaluation	45
2.1.2.1 Qualitative Criteria	45
2.1.2.2 Quantitative Criteria	45
2.1.3 Measures Considered to Reduce Longline-Seabird Interactions	46
2.1.3.1 Thawed, Blue-dyed Bait	47
2.1.3.2 Strategic Offal Discard	49
2.1.3.3 Line-shooter with Weighted Branch Lines	50
2.1.3.4 Tori line	51
2.1.3.5 Night-setting	54
2.1.3.6 Underwater Setting Chute	55
2.1.3.7 Side-setting	56
2.1.3.8 Summary Comparison of Individual Seabird Interaction Avoidance Measures	60
2.1.4 Combinations of Measures for Reduction of Longline-Seabird Interactions	65
2.1.4.1 Qualitative Assessments of Combinations of Avoidance Measures	65
2.1.4.2 Quantitative Efficacies for Combinations of Avoidance Measures	70
2.1.5 Alternatives Considered to Meet the Objective of the Seabird Action	72
2.1.5.1 Descriptions of the Alternatives	72
2.1.5.2 Qualitative and Quantitative Comparisons of the Seabird Action Alternatives	82
2.1.6 Seabird Action Alternatives Considered but Eliminated from Detailed Study	85
2.2 Alternatives for Management of the U.S. Pacific Ocean Squid Jigging Fisheries	89
2.2.1 Alternatives for Management of the Squid Jigging Fisheries under the MSA	89
2.2.2 Alternatives for Management of the Squid Jigging Fisheries under the MSA or HSFCA	90
2.2.3 Squid Fishery Management Alternatives Considered but Eliminated from Detailed Study	91
Chapter 3 Affected Environment	93
3.1 Introduction	93
3.2 The Western and Central Pacific Ocean Pelagic Environment	93
3.2.1 Oceanography	93
3.2.2 Essential Fish Habitat and Habitat Areas of Particular Concern	93
3.2.3 Contaminants in the Environment	94

3.3 Pelagic Management Unit Species	94
3.3.1 Status of Billfish Stocks	95
3.3.1.1 Swordfish (<i>Xiphias gladius</i>)	96
3.3.1.2 Black Marlin (<i>Makaira indica</i>)	96
3.3.1.3 Blue Marlin (<i>Makaira mazara</i>)	96
3.3.1.4 Striped Marlin (<i>Tetrapturus audax</i>)	96
3.3.1.5 Shortbill Spearfish (<i>Tetrapturus angustirostris</i>)	97
3.3.1.6 Sailfish (<i>Istiophorus platypterus</i>)	97
3.3.2 Status of Tuna Stocks	97
3.3.2.1 Bigeye Tuna (<i>Thunnus obesus</i>)	97
3.3.2.2 Albacore (<i>Thunnus alalunga</i>)	98
3.3.2.3 Yellowfin Tuna (<i>Thunnus albacares</i>)	98
3.3.2.4 Bluefin Tuna (<i>Thunnus thynnus</i>)	99
3.4.2.5 Skipjack Tuna (<i>Katsuwonus pelamis</i>)	100
3.3.2.6 Kawakawa (<i>Euthynnus affinis</i>)	100
3.3.3 Status of Shark Stocks	101
3.3.3.1 General Life History Characteristics of Sharks	101
3.3.3.2 Blue Shark (<i>Prionace glauca</i>)	101
3.3.3.3 Miscellaneous Sharks	102
3.3.3.3.1 Family Alopiidae	102
3.3.3.3.2 Family Lamnidae	102
3.3.3.3.3 Family Carcharhinidae	103
3.3.4 Stock Status of Miscellaneous PMUS	104
3.3.4.1 Mahimahi (<i>Coryphaena hippurus</i>) and Wahoo (Ono) (<i>Acanthocybium solandri</i>)	104
3.3.4.2 Opah or Moonfish (<i>Lampris guttatus</i>)	104
3.3.4.3 Pomfret (<i>Eumegistus illustris</i>)	104
3.3.4.4 Snake Mackerels (Family Gempylidae)	104
3.4 Potential Squid PMUS	104
3.4.1 Neon Flying Squid (<i>Ommastrephes bartrami</i>)	105
3.4.1.1 General Description	105
3.4.1.2 Status of the Stock	106
3.4.2 Diamondback Squid (<i>Thysanoteuthis rhombus</i>)	107
3.4.2.1 General Description	107
3.4.2.2 Status of the Stock	107
3.4.3 Purpleback Flying Squid (<i>Sthenoteuthis oualaniensis</i>)	108
3.4.3.1 General Description	108
3.4.3.2 Status of the Stock	108
3.4.4 Other Pelagic Cephalopods of the Western Pacific Region	109
3.4.5 Bycatch in the Squid Jigging Fisheries	110
3.4.5.1 Marine Mammals	110
3.4.5.2 Seabirds	111
3.4.5.3 Sea Turtles	112
3.4.5.4 Fish	113
3.5 Other Species, Including Non-Target, Associated, or Dependent Pelagics Species (NADS)	113
3.6 Protected Species	113

3.6.1 Seabirds	114
3.6.1.1 Albatrosses (Order Procellariiformes, Family Diomedeidae)	114
3.6.1.1.1 Short-tailed Albatross (<i>Phoebastria albatrus</i>)	116
3.6.1.1.2 Black-footed Albatross (<i>Phoebastria nigripes</i>)	121
3.6.1.1.3 Laysan Albatross (<i>Phoebastria immutabilis</i>)	125
3.6.1.2 Shearwaters (Order Procellariiformes, Family Procellariidae)	
.	127
3.6.1.2.1 Newell's Shearwater (<i>Puffinus auricularis newelli</i>)	129
3.6.1.2.2 Wedge-tailed Shearwater (<i>Puffinus pacificus</i>)	129
3.6.1.2.3 Christmas Shearwater (<i>Puffinus nativitatis</i>)	130
3.6.1.3 Boobies (Order Pelecaniformes, Family Sulidae)	130
3.6.1.4 Fishery Seabird Interactions	132
3.6.1.4.1 Worldwide Longline Albatross Interactions	132
3.6.1.4.2 Hawaii Longline Seabird Interactions	133
3.6.1.4.3 Previous Actions to Reduce Seabird Interactions in the Hawaii-based Longline Fishery	134
3.6.1.4.4 Monitoring Seabird Interactions	138
3.6.1.4.5 Estimating the Incidental Catch of Seabirds by the Hawaii-based Longline Fishery	140
3.6.2 Sea Turtles	151
3.6.2.1 Leatherback Turtle (<i>Dermochelys coriacea</i>)	151
3.6.2.2 Loggerhead Turtle (<i>Caretta caretta</i>)	152
3.6.2.3 Green Turtle (<i>Chelonia mydas</i>)	152
3.6.2.4 Olive Ridley Turtle (<i>Lepidochelys olivacea</i>)	154
3.6.2.5 Hawksbill Turtle (<i>Eretmochelys imbricata</i>)	155
3.6.2.6 Interactions of the Hawaii-based Longline Fleet with Sea Turtles	155
3.6.3 Marine Mammals	156
3.6.3.1 Endangered Marine Mammals	158
3.6.3.1.1 Humpback Whale (<i>Megaptera novaeangliae</i>)	158
3.6.3.1.2 Sperm Whale (<i>Physeter macrocephalus</i>)	159
3.6.3.1.3 Hawaiian Monk Seal (<i>Monachus schauinslandi</i>)	160
3.6.3.2 Non-ESA-Listed Marine Mammals	161
3.6.3.3 Interactions of the Hawaii-based Longline Fleet with Marine Mammals	162
3.7 Features of the Economic Environment	163
3.7.1 Overview of Hawaii's Pelagic Fisheries	164
3.7.2 Hawaii Longline Fishery	168
3.7.2.1 Overview	168
3.7.2.2 Description of Impacts of Recent Regulatory Changes	170
3.7.2.2.1 Sea Turtle Interaction Measures	171
3.7.2.2.2 Seabird Interaction Mitigation Methods	174
3.7.2.2.3 Shark Finning Measures	180
3.7.2.3 Changes in Net Revenue and Regional Impacts	180
3.7.2.3.1 Changes in Net Revenue	180
3.7.2.3.2 Regional Impacts	181
3.7.3 Squid Fisheries	183

3.7.3.1 Overview of Global Squid Fishery	184
3.7.3.1.1 Harvesting Sector	184
3.7.3.1.2 Processing Sector	194
3.7.3.1.3 Market Trends for Squid Products	196
3.7.3.2 Domestic Distant-Water Squid Fishery in the Pacific	198
3.7.3.2.1 Number of Vessels Involved	198
3.7.3.2.2 Type and Quantity of Fishing Gear Used	199
3.7.3.2.3 Species of Fish Involved and Their Location	199
3.7.3.2.4 Actual and Potential Revenue from the Fishery	200
3.7.3.2.5 Recreational Interest in the Fishery	200
3.7.3.2.6 Nature and Extent of Foreign Fishing and Indian Treaty Fishing Rights, If Any	200
3.7.3.3 Ika Shibi Component of the Hawaii Pelagic Handline Fishery	200
3.7.3.3.1 Number of Vessels Involved	200
3.7.3.3.2 Type and Quantity of Fishing Gear Used	201
3.7.3.3.3 Species of Fish Involved and Their Location	202
3.7.3.3.4 Actual and Potential Revenue from the Fishery	203
3.7.3.3.5 Recreational Interest in the Fishery	204
3.7.3.3.6 Nature and Extent of Foreign Fishing and Indian Treaty Fishing Rights, If Any	204
3.7.3.4 Kauai-based Directed Squid Fishery	204
3.7.3.4.1 Number of Vessels Involved	205
3.7.3.4.2 Type and Quantity of Fishing Gear Used	205
3.7.3.4.3 Species of Fish Involved and Their Location	205
3.7.3.4.4 Actual and Potential Revenue from the Fishery	206
3.7.3.4.5 Recreational Interest in the Fishery	206
3.7.3.4.6 Nature and Extent of Foreign Fishing and Indian Treaty Fishing Rights, If Any	207
3.8 Sociocultural Setting and Fishing Communities	207
3.8.1 Hawaii Sociocultural Setting	208
3.8.1.1 Longline Fishery	208
3.8.1.2 Squid Fisheries	213
3.8.2 Hawaii Fishing Communities	214
3.9 Administration and Enforcement	216
3.9.1 Permitting, Data Collection and Enforcement under the Pelagics FMP ..	216
3.9.1.1 Permitting	216
3.9.1.2 Observer Program	217
3.9.1.3 Enforcement	217
3.9.1.4 Data Collection	218
3.9.1.4.1 Hawaii	219
3.9.1.4.2 American Samoa	219
3.9.1.4.3 Guam	219
3.9.1.4.4 Northern Mariana Islands	220
3.9.2 Permitting, Data Collection and Enforcement under the High Seas Fishing Compliance Act	220

3.9.3 Permitting, Data Collection and Enforcement under the South Pacific Tuna Treaty	220
Chapter 4 Environmental Consequences	223
4.1 Introduction	223
4.2 Impacts to the Pelagic Environment	223
4.2.1 Seabird Interaction Avoidance Methods	223
4.2.2 Squid Jig Fishery Management Alternatives	224
4.3 Impacts to Squid	224
4.3.1 Seabird Interaction Avoidance Methods	224
4.3.2 Squid Jig Fishery Management Alternatives	224
4.4 Impacts to PMUS and Non-PMUS	225
4.4.1 Seabird Interaction Avoidance Methods	225
4.4.2 Squid Jig Fishery Management Alternatives	225
4.5 Impacts to Seabirds	226
4.5.1 Alternative SB1: No action	226
4.5.2 Alternative SB2A: Use either current methods or side-setting north of 23°N	228
4.5.3 Alternative SB2B: Use either current methods or side-setting in all areas	229
4.5.4 Alternative SB3A: Use either current methods or underwater setting chute north of 23°N	229
4.5.5 Alternative SB3B: Use either current methods or underwater setting chute in all areas	229
4.5.6 Alternative SB4A: Use either current methods or tori line north of 23°N	229
4.5.7 Alternative SB4B: Use either current methods or tori line in all areas	229
4.5.8 Alternative SB5A: Use either current methods or side-setting or underwater setting chute north of 23°N	230
4.5.9 Alternative SB5B: Use either current methods or side-setting or underwater setting chute in all areas	230
4.5.10 Alternative SB6A: Use either current methods or side-setting or underwater setting chute or tori line north of 23°N	230
4.5.11 Alternative SB 6B: Use either current methods or side-setting or underwater setting chute or tori line in all areas	230
4.5.12 Alternative SB7A: Use either current measures or side-setting or tori line north of 23°N	230
4.5.13 Alternative SB7B: Use either current measures or side-setting or tori line in all areas	230
4.5.14 Alternative SB7C: For shallow-sets: use either current measures (without blue-dyed bait) or underwater setting chute or side-setting or tori line in all areas. For deep-sets: use either current measures (without blue-dyed bait) or underwater setting chute or side-setting or tori line north of 23°N	231
4.5.15 Alternative SB7D (Preferred Alternative): For shallow-sets: use either current measures plus a tori line or use side-setting in all areas. For deep-sets: use either current measures plus a tori line or side-setting with a line-shooter and weighted branch lines north of 23°N	231

4.5.16 Alternative SB7E: For shallow-sets: use either current measures without blue-dyed bait or strategic offal discard, or use side-setting in all areas. For deep-sets: use either current measures without blue-dyed bait or strategic offal discard, or use side-setting north of 23°N	231
4.5.17 Alternative SB8A: Use current mitigation measures plus side-setting north of 23°N	231
4.5.18 Alternative SB8B: Use current mitigation measures plus side-setting in all areas	231
4.5.19 Alternative SB9A: Use side-setting north of 23°N	232
4.5.20 Alternative SB9B: Use side-setting in all areas	232
4.5.21 Alternative SB10A: Use-side-setting unless technically infeasible in which case use current measures north of 23°N	232
4.5.22 Alternative SB10B: Use side-setting unless technically infeasible in which case use current measures in all areas	232
4.5.23 Alternative SB11A: Use side-setting unless technically infeasible, in which case use an underwater setting chute or a tori line or current measures without blue bait or strategic offal discards (shallow-setting vessels set at night, deep-setting vessels use line-shooters with weighted branch lines), when fishing north of 23°N	232
4.5.24 Alternative SB11B: Use side-setting unless technically infeasible, in which case use an underwater setting chute or a tori line or current measures without blue bait or strategic offal discards (shallow-setting vessels set at night, deep-setting vessels use line-shooters with weighted branch lines), in all areas	233
4.5.25 Alternative SB12: Voluntarily use night-setting or underwater setting chute or tori line or line-shooter with weighted branch lines south of 23°N ..	233
4.5.26 Comparison of the Projected Efficacy of the Seabird Alternatives	233
4.5.27 Impacts to Seabirds from Squid Jig Fishery Management Alternatives	244
4.6 Impacts to Sea Turtles	245
4.6.1 Seabird Interaction Avoidance Methods	245
4.6.2 Squid Jig Fishery Management Alternatives	245
4.7 Impacts to Marine Mammals	246
4.7.1 Seabird Interaction Avoidance Methods	246
4.7.2 Squid jig Fishery Management Alternatives	247
4.8 Economic Impacts	247
4.8.1 Seabird Mitigation Measures	247
4.8.1.1 Alternative SB1: No Action	247
4.8.1.2 Alternative SB2A: Use either current methods or side-setting north of 23°N	251
4.8.1.3 Alternative SB2B: Use either current methods or side-setting in all areas	252
4.8.1.4 Alternative SB3A: Use either current methods or underwater setting chute north of 23°N	253
4.8.1.5 Alternative SB3B: Use either current methods or underwater setting chute in all areas	254

4.8.1.6 Alternative SB4A: Use either current methods or tori line north of 23°N	254
4.8.1.7 Alternative SB4B: Use either current methods or tori line in all areas	255
4.8.1.8 Alternative SB5A: Use either current methods or side-setting or underwater setting chute north of 23°N	256
4.8.1.9 Alternative SB5B: Use either current methods or side-setting or underwater setting chute in all areas	257
4.8.1.10 Alternative SB6A: Use either current methods or side-setting or underwater setting chute or tori line north of 23°N	257
4.8.1.11 Alternative SB6B: Use either current methods or side-setting or underwater setting chute or tori line in all areas	258
4.8.1.12 Alternative SB7A: Use either current methods or side-setting or tori line north of 23°N	259
4.8.1.13 Alternative SB7B: Use either current methods or side-setting or tori line in all areas	259
4.8.1.14 Alternative SB7C: For shallow-sets: use either current methods (without blue-dyed bait) or underwater setting chute or side-setting or tori line in all areas. For deep-sets: use either current methods (without blue-dyed bait) or underwater setting chute or side-setting or tori line north of 23°N	260
4.8.1.15 Alternative SB7D (Preferred Alternative): For shallow-sets: use either side-setting or current methods and tori lines in all areas. For deep-sets: use either side-setting or current methods and tori lines north of 23°N	261
4.8.1.16 Alternative SB7E: For shallow-sets: use either side-setting or current methods and tori lines in all areas. For deep-sets: use either side-setting or current methods and tori lines north of 23°N. The requirement for blue dyed bait and offal discards is removed ..	261
4.8.1.17 Alternative SB8A: Use current mitigation methods plus side-setting north of 23°N	262
4.8.1.18 Alternative SB8B: Use current mitigation methods plus side-setting in all areas	263
4.8.1.19 Alternative SB9A: Use side-setting north of 23°N	263
4.8.1.20 Alternative SB9B: Use side-setting in all areas	264
4.8.1.21 Alternative SB10A: Use side-setting unless technically infeasible; in which case use current methods north of 23°N	264
4.8.1.22 Alternative SB10B: Use side-setting unless technically infeasible; in which case use current methods in all areas	265
4.8.1.23 Alternative SB11A: Use side-setting unless technically infeasible, in which case use an underwater setting chute or a tori line or current measures without blue bait or strategic offal discards (shallow-setting vessels set at night, deep-setting vessels use line-shooters with weighted branch lines), when fishing north of 23°N	265
4.8.1.24 Alternative SB11B: Use side-setting unless technically infeasible, in which case use an underwater setting chute or a tori line or	

current measures without blue bait or strategic offal discards (shallow-setting vessels set at night, deep-setting vessels use line-shooters with weighted branch lines), in all areas	266
4.8.1.25 Alternative SB12: Voluntarily use night-setting or underwater setting chute or tori line or line-shooter with weighted branch lines south of 23°N	267
4.8.2 Squid Jig Fishery Management Measures	267
4.8.2.1 Alternative SQA.1: No Action	267
4.8.2.2 Alternative SQA.2: Voluntary Monitoring	268
4.8.2.3 Alternative SQA.3 (Sub-objective A Preferred Alternative): Mandatory Monitoring and Management through the Pelagics FMP	268
4.8.2.4 Alternative SQA.4: Mandatory Monitoring and Management through a New Squid FMP	269
4.8.2.5 Alternative SQA.5: Mandatory Monitoring and Management through International Agreement	269
4.8.2.6 Alternative SQB.1: Sub-objective B No Action	269
4.8.2.7 Alternative SQB.2: Cease Issuing HSFCA Permits	269
4.8.2.8 Alternative SQB.3: Voluntary Monitoring	270
4.8.2.9 Alternative SQB.4 (Sub-objective B Preferred Alternative): Mandatory Monitoring through New Logbooks	271
4.8.2.10 Alternative SQB.5: Mandatory Monitoring and Management through FMPs	271
4.8.2.11 Alternative SQB.6: Mandatory Monitoring and Management through International Agreement	272
4.9 Social Impacts	272
4.9.1 Seabird Interaction Avoidance Measures	272
4.9.1.1 Alternative SB1: No Action	272
4.9.1.1.1 Sustained Participation of Fishing Communities	272
4.9.1.1.2 Group and Cultural Issues	272
4.9.1.1.3 Environmental Justice	273
4.9.1.2 Alternative SB2A: Use either current methods or side-setting north of 23°N	274
4.9.1.2.1 Sustained Participation of Fishing Communities	274
4.9.1.2.2 Group and Cultural Issues	274
4.9.1.2.3 Environmental Justice	274
4.9.1.3 Alternative SB2B: Use either current methods or side-setting in all areas	274
4.9.1.3.1 Sustained Participation of Fishing Communities	274
4.9.1.3.2 Group and Cultural Issues	274
4.9.1.3.3 Environmental Justice	274
4.9.1.4 Alternative SB3A: Use either current methods or underwater setting chute north of 23°N	275
4.9.1.5 Alternative SB3B: Use either current methods or underwater setting chute in all areas	275
4.9.1.6 Alternative SB4A: Use either current methods or tori line north of 23°N	275

4.9.1.7 Alternative SB4B: Use either current methods or tori line in all areas	275
4.9.1.8 Alternative SB5A: Use either current methods or side-setting or underwater setting chute north of 23°N	275
4.9.1.9 Alternative SB5B: Use either current methods or side-setting or underwater setting chute in all areas	275
4.9.1.10 Alternative SB6A: Use either current methods or side-setting or underwater setting chute or tori line north of 23°N	275
4.9.1.11 Alternative SB6B: Use either current methods or side-setting or underwater setting chute or tori line in all areas	275
4.9.1.12 Alternative SB7A: Use either current measures or side-setting or tori line north of 23°N	276
4.9.1.13 Alternative SB7B: Use either current measures or side-setting or tori line in all areas	276
4.9.1.14 Alternative SB7C: For shallow-sets: use either current measures (without blue-dyed bait) or underwater setting chute or side-setting or tori line in all areas. For deep-sets: use either current measures (without blue-dyed bait) or underwater setting chute or side-setting or tori line north of 23°N	276
4.9.1.15 Alternative SB7D (Preferred Alternative): For shallow-sets: use either side-setting or current methods and tori lines in all areas. For deep-sets: use either side-setting or current methods and tori lines north of 23 N	276
4.9.1.16 Alternative SB7E: For shallow-sets: use either side-setting or current methods and tori lines in all areas. For deep-sets: use either side-setting or current methods and tori lines north of 23°N. The requirement for blue dyed bait and offal discards is removed ..	276
4.9.1.17 Alternative SB8A: Use current mitigation measures plus side-setting north of 23°N	277
4.9.1.18 Alternative SB8B: Use current mitigation measures plus side-setting in all areas	277
4.9.1.19 Alternative SB9A: Use side-setting north of 23°N	277
4.9.1.20 Alternative SB9B: Use side-setting in all areas	278
4.9.1.21 Alternative SB10A: Use side-setting unless technically infeasible; in which case use current measures north of 23°N	278
4.9.1.22 Alternative SB10B: Use side-setting unless technically infeasible; in which case use current measures in all areas	278
4.9.1.23 Alternative SB11A: Use side-setting unless technically infeasible, in which case use an underwater setting chute or a tori line or current measures without blue bait or strategic offal discards (shallow-setting vessels set at night, deep-setting vessels use line-shooters with weighted branch lines), when fishing north of 23°N	278
4.9.1.24 Alternative SB11B: Use side-setting unless technically infeasible, in which case use an underwater setting chute or a tori line or current measures without blue bait or strategic offal discards	

(shallow-setting vessels set at night, deep-setting vessels use line-shooters with weighted branch lines), in all areas	278
4.9.1.25 Alternative SB12: Voluntarily use night-setting or underwater setting chute or tori line or line-shooter with weighted branch lines south of 23°N	278
4.9.2 Squid Jig Fishery Management Measures	279
4.9.2.1 Alternative SQA.1: Sub-objective A No Action	279
4.9.2.2 Alternative SQA.2: Voluntary Monitoring	279
4.9.2.3 Alternative SQA.3 (Sub-objective A Preferred Alternative): Mandatory Monitoring and Management through the Pelagics FMP	279
4.9.2.4 Alternative SQA.4: Mandatory Monitoring and Management through a New Squid FMP	279
4.9.2.5 Alternative SQA.5: Mandatory Monitoring and Management through International Agreement	279
4.9.2.6 Alternative SQB.1: Sub-objective B No Action	279
4.9.2.7 Alternative SQB.2: Cease Issuing HSFCA Permits	279
4.9.2.8 Alternative SQB.3: Voluntary Monitoring	280
4.9.2.9 Alternative SQB.4 (Sub-objective B Preferred Alternative): Mandatory Monitoring and Management through New Logbooks	280
4.9.2.10 Alternative SQB.5: Mandatory Monitoring and Management through FMPs	280
4.9.2.11 Alternative SQB.6: Mandatory Monitoring and Management through International Agreement	280
4.10 Impacts to Administration and Enforcement	280
4.10.1 Seabird Interaction Avoidance Methods	280
4.10.2 Squid Jig Fishery Management Alternatives	281
4.10.2.1 Alternative SQA.1: Sub-objective A No Action	281
4.10.2.2 Alternative SQA.2: Voluntary Monitoring	281
4.10.2.3 Alternative SQA.3 (Sub-objective A Preferred Alternative): Mandatory Monitoring and Management through the Pelagics FMP	281
4.10.2.4 Alternative SQA.4: Mandatory Monitoring and Management through a New Squid FMP	281
4.10.2.5 Alternative SQA.5: Mandatory Monitoring and Management through International Agreement	282
4.10.2.6 Alternative SQB.1: Sub-objective B No Action	282
4.10.2.7 Alternative SQB.2: Cease Issuing HSFCA Permits	282
4.10.2.8 Alternative SQB.3: Voluntary Monitoring	282
4.10.2.9 Alternative SQB.4 (Sub-objective B Preferred Alternative): Mandatory Monitoring and Management through New Logbooks	282
4.10.2.10 Alternative SQB.5: Mandatory Monitoring and Management through New FMPs	282
4.10.2.11 Alternative SQB.6: Mandatory Monitoring and Management through International Agreement	283

4.11 Cumulative Effects	283
4.11.1 Analytical Steps	284
4.11.2 Cumulative Impacts to the Pelagic Environment	284
4.11.2.1 Potential Direct and Indirect Effects of Alternatives for Seabird Interaction Avoidance	284
4.11.2.2 Potential Direct and Indirect Effects of Alternatives for Squid Jig Fishery Management	284
4.11.2.3 Potential Effects of Exogenous Factors	285
4.11.2.3.1 Non-U.S. Pelagic Longline Fisheries in the North Pacific Ocean	285
4.11.2.3.2 Marine Debris in the North Pacific Ocean	285
4.11.2.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	286
4.11.2.5 Potential Cumulative Effects of Alternatives for Squid jig Fishery Management	286
4.11.3 Cumulative Effects to Squid	286
4.11.3.1 Potential Direct and Indirect Effects of Alternatives for Seabird Interaction Avoidance	286
4.11.3.2 Potential Direct and Indirect Effects of Alternatives for Squid Jig Fishery Management	286
4.11.3.3 Potential Effects of Exogenous Factors	286
4.11.3.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	286
4.11.3.5 Potential Cumulative Effects of Alternatives for Squid Jig Fishery Management	286
4.11.4 Cumulative Effects to PMUS and non-PMUS	287
4.11.4.1 Potential Direct and Indirect Effects of Alternatives for Seabird Interaction Avoidance	287
4.11.4.2 Potential Direct and Indirect Effects of Alternatives for Squid Jig Fishery Management	287
4.11.4.3 Potential Effects of Exogenous Factors	287
4.11.4.3.1 Non-U.S. Pelagic Fisheries	287
4.11.4.3.2 Western and Central Pacific Tuna Commission	287
4.11.4.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	288
4.11.4.5 Potential Cumulative Effects of Alternatives for Squid Jig Fishery Management	288
4.11.5 Cumulative Effects to Seabirds	288
4.11.5.1 Potential Direct and Indirect Effects of Alternatives for Seabird Interaction Avoidance	288
4.11.5.2 Potential Direct and Indirect Effects of Alternatives for Squid Jig Fishery Management	288
4.11.5.3 Potential Effects of Exogenous Factors	288
4.11.5.3.1 Degradation of Albatross Nesting Habitats	288
4.11.5.3.2 Continued Exposure to Environmental Contaminants, Especially PCBs	289

4.11.5.3.3 Continued Exposure to Concentrations of Small Plastic Debris in the North Pacific Ocean	289
4.11.5.3.4 Incidental Seabird Mortality in Longline Fisheries not Regulated Under the Pelagics FMP	290
4.11.5.3.5 Transfer of Seabird Interaction Avoidance Measures	291
4.11.5.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	291
4.11.5.5 Potential Cumulative Effects of Alternatives for Squid Jig Fishery Management	292
4.11.6 Cumulative Effects to Sea Turtles	292
4.11.6.1 Potential Direct and Indirect Effects of Alternatives for Seabird Interaction Avoidance	292
4.11.6.2 Potential Direct and Indirect Effects of Alternatives for Squid Jig Fishery Management	292
4.11.6.3 Potential Effects of Exogenous Factors	292
4.11.6.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	293
4.11.6.5 Potential Cumulative Effects of Alternatives for Squid Jig Fishery Management	293
4.11.7 Cumulative Effects to Marine Mammals	293
4.11.7.1 Potential Direct and Indirect Effects of Seabird Interaction Avoidance Alternatives	293
4.11.7.2 Potential Direct and Indirect Effects of Squid Jig Fishery Management Alternatives	294
4.11.7.3 Potential Effects of Exogenous Factors	294
4.11.7.3.1 Ship Traffic and Anthropogenic Noise	294
4.11.7.3.2 Interactions with Pelagic Fisheries Not Managed under the Pelagics FMP	294
4.11.6.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	294
4.11.6.5 Potential Cumulative Effects of Alternatives for Squid Jig Fishery Management	295
4.11.8 Cumulative Effects to Economies	295
4.11.8.1 Potential Direct and Indirect Effects of Alternatives for Seabird Interaction Avoidance	295
4.11.8.2 Potential Direct and Indirect Effects of Alternatives for Squid Jig Fishery Management	295
4.11.8.3 Potential Effects of Exogenous Factors	295
4.11.8.3.1 Regulatory Regimes External to the Pelagics FMP	295
4.11.8.3.2 Influence of Environmental Issues on Seafood Marketing and Demand	296
4.11.8.3.3 Influence of Health Issues on Seafood Marketing and Demand	297
4.11.8.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	299

4.11.8.5 Potential Cumulative Effects of Alternatives for Squid Jig Fishery Management	300
4.11.9 Cumulative Effects to Social and Cultural Resources	300
4.11.9.1 Potential Direct and Indirect Effects of Alternatives for Seabird Interaction Avoidance	300
4.11.9.2 Potential Direct and Indirect Effects of Alternatives for Squid Jig Fishery Management	300
4.11.9.3 Potential Effects of Exogenous Factors	300
4.11.9.3.1 Employment Options	300
4.11.9.3.2 Incidental Mortality of Seabirds in Fisheries Not Managed Under the Pelagics FMP	300
4.11.9.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	300
4.11.9.5 Potential Cumulative Effects of Alternatives for Squid Jig Fishery Management	301
4.11.10 Cumulative Effects to Administration and Enforcement	301
4.11.10.1 Potential Direct and Indirect Effects of Alternatives for Seabird Interaction Avoidance	301
4.11.10.2 Potential Direct and Indirect Effects of Alternatives for Squid Jig Fishery Management	301
4.11.10.3 Potential Effects of Exogenous Factors	301
4.11.10.4 Potential Cumulative Effects of Alternatives for Seabird Interaction Avoidance	302
4.11.10.5 Potential Cumulative Effects of Alternatives for Squid Jig Fishery Management	302
4.12 Summary of Action Alternatives Analyses	302
4.12.1 Seabird Alternatives	302
4.12.2 Squid Alternatives	307
 Chapter 5 Environmental Management Issues	309
5.1 Introduction	309
5.2 Short-term Uses Versus Long-term Productivity	309
5.3 Irreversible and Irretrievable Commitments of Resources	310
5.4 Energy Requirements and Conservation Potential of the Alternatives	310
5.5 Urban Quality, Historic Resources and Design of the Built Environment, Including Re-use and Conservation Potential of the Alternatives	310
5.6 Cultural Resources and Conservation Potential of the Alternatives	310
5.7 Possible Conflicts Between the Alternatives and Other Plans	311
5.8 Adverse Effects that Cannot be Avoided	311
5.9 Possible Mitigation Methods for Unavoidable Adverse Effects	311
 Chapter 6 EIS Preparers, Scoping and Review	313
6.1 Preparers of the EIS	313
6.2 Scoping	313
6.2.1 The Scoping Process	313
6.2.2 Issues Ripe for Decision-making	315
6.2.3 Level of NEPA Analysis	318

6.2.4 Issues Not Ripe for Decision-making	321
6.3 Distribution of the DEIS	322
6.4 Comments on the DEIS	336
6.5 Changes to the DEIS	383
 Chapter 7 Literature Cited	385
Glossary	441
Appendix A Contaminants and Debris in the Marine Environment	447
Appendix B Potential Squid Pelagic Management Unit Species (PMUS)	455
Appendix C Sea Turtles	487
Appendix D Distribution of Fishing Effort in the Hawaii-based Longline Fishery	507
Appendix E Comment Letters Received on the Draft Environmental Impact Statement (EIS)	511
Appendix F Western Pacific Fishery Management Council (WPFMC) Memorandum Regarding Preferred Seabird Action Alternative	557
 Index	559

List of Tables

1.2-1 Amendments to the Pelagics FMP	9
1.2-2 Pelagic Management Unit Species	12
1.2-3 Seabird Measures Proposed by WPFMC Action and Those Contained in the USFWS Biological Opinions on the Effects of the Hawaii Longline Fishery on the Short-tailed Albatross	18
1.3-1 Pelagic Fisheries in the Western Pacific Region	25
1.3-2 Permit and Monitoring Mechanisms for Existing and Potential Fisheries Managed Under the Pelagics FMP.	26
1.3-3 Total Pelagic Landings (pounds [lb]) by Type of Fish in the Western Pacific Region in 2002.....	28
1.3-4 Total Pelagic Landings (lb) by Fishery in the Western Pacific Region in 2002.	28
1.3-5 Hawaii-based Longline Fishery Landings - Historical Summary.	29
1.3-6 American Samoa Tuna Landings - Historical Summary	30
1.4-1 Pelagic Fishery Information for the California-based Longline Fishery	34
1.5-1 Comparison of Total Pelagics FMP Fisheries Commercial Landings with Other Pacific Ocean Commercial Landings.	41
2.1-1 Qualitative Appraisals of Seabird Interaction Avoidance Measures	60
2.1-2 Interaction Avoidance Measure Efficacy Values From Experiments Conducted in the Hawaii-based Longline Fishery.	64
2.1-3 Summary of Costs per Vessel for Seabird Interaction Avoidance Measures	65
2.1-4 Seabird Interaction Avoidance Measure Combination Matrix	66
2.1-5 Seabird Mitigation Measures Included in Each Alternative	80
2.1-6 Qualitative and Quantitative Assessments for the Seabird Action Alternatives	82
2.1-7 Seabird Interactions Without Avoidance Measures by Type of Set, Trip and Year for Hawaii Longline Vessels Fishing South and North of 23°N	86
2.1-8 Estimated Numbers of Interactions with Black-footed and Laysan Albatross by Hawaii-based Longline Vessels by Calendar Quarter for 2003	88
3.2-1 Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) for all Western Pacific FMPs.	94
3.6.1-1 Numbers of Breeding Pairs of Black-footed, Laysan and Short-tailed Albatrosses at Each Known Breeding Locality followed by the Year of the Survey	115
3.6.1-2 Short-tailed Albatross Observations in the Northwestern Hawaiian Islands.	117
3.6.1-3 Short-tailed Albatross Census Counts at Torishima, Japan, Between 1977 and 2004	119
3.6.1-4 NWHI Booby Counts at Johnston Atoll, Midway Atoll and Tern Island, French Frigate Shoals, Between 1979 and 1996	131
3.6.1-5 NMFS Observer Program Coverage of Hawaii-based Longline Fishing Vessels Between 1994 and 2003	139
3.6.1-6 Estimated Annual Total Incidental Catch of Albatrosses in the Hawaii Longline Fishery	143
3.6.1-7 Estimated Fleet-wide Albatross Catch Rates During Two Time Periods in 2000 for the Hawaii-based Longline Fishery Based on NMFS Observer Records	148

3.6.1-8 Observed Numbers of Seabirds Caught by Hawaii-based Longline Vessels Between 2001 and 2003	148
3.6.2-1 Estimated Annual Averages of Turtles Captured and Killed in the Hawaii-based Longline Fishery Under Two Management Regimes	156
3.6.3-1 Sightings and Estimated Abundances of Cetaceans in the Hawaii EEZ from Research Cruises in 2002	157
3.6.3-2 Marine Mammals Not Listed as Threatened or Endangered Under the ESA but Observed in Areas Where Fisheries in the Western Pacific Region Operate	161
3.6.3-3 Observed Interactions of the Hawaii-based Longline Fishery with Marine Mammals, 1994-2004	162
3.7-1 Volume and Ex-vessel Value of Landings in Hawaii's Commercial Pelagic Fisheries by Major Gear Type, 1999-2003	165
3.7-2 Volume and Ex-vessel Value of Landings in Hawaii's Commercial Pelagic Fisheries by Species, 1999-2002	165
3.7-3 Primary Fishing Method Reported on HDAR Commercial Marine Licenses, 1999-2002.	166
3.7-4 Species Composition of Landings Made by Hawaii Charter Vessels, 2002	166
3.7-5 Hawaii Pelagic Longline Fishery Activity, 1999-2003	169
3.7-6 Reported Average Annual Revenue and Costs for the Hawaii-based Longline Fleet, 2000	170
3.7-7 List of Items and Their Costs Associated with Converting Gear from Targeting Swordfish to Tuna	171
3.7-8 Hawaii-based Longline Catch in the U.S. Possessions, 1991-2002	173
3.7-9 Estimated Economic Effects of Various Mitigation Methods that May Reduce Seabird Interactions in the Hawaii-based Longline Fishery	177
3.7-10 Reported Average Vessel Annual Loss of Revenue to the Hawaii-based Longline Fleet Because of the 2000 Shark Finning Regulations	180
3.7-11 Comparison of the Average Annual Revenue and Costs in Costs-Earning Studies of the Hawaii-based Longline Fleet, 1993 and 2000	181
3.7-12 Characteristics of the Vessels Participating in the Domestic Distant-Water Squid Fishery in the Pacific Ocean	199
3.7-13 Ika Shibi Fishing Locations and Seasons in the Waters Around the Island of Hawaii	202
3.7-14 The 1995-1996 Average Characteristics of Island of Hawaii Full-Time Ika Shibi Vessels	203
3.7-15 The 1995-1996 Average Annual Revenue and Costs for Full-time Ika Shibi Vessels .	204
3.8-1 Ethnicity of Hawaii Longline Vessel Owners in 2000	209
3.8-2 Allocation of Shallow-set Certificates Among Hawaii Longline Limited Entry Permit Holders	213
4.5-1 Current Seabird Interaction Avoidance Measures	227
4.5-2 Estimated Black-footed and Laysan Albatross Interaction Rates in the Hawaii-based Longline Fishery for Two Time Periods	233
4.5-3 Seabird Interaction Projections By Alternative	238
4.8-1 Predicted Annual Catch of the Hawaii-based Longline Fleet Under Alternative SB1, the No Action Alternative	248
4.8-2 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB1, the No Action Alternative	250

4.8-3 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB2A	252
4.8-4 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB2B.....	252
4.8-5 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB3A.	254
4.8-6 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB3B	254
4.8-7 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB4A	255
4.8-8 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB4B	256
4.8-9 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB5A	256
4.8-10 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB5B	257
4.8-11 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB6A	258
4.8-12 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB6B	258
4.8-13 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB7A	259
4.8-14 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB7B	260
4.8-15 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB7C	260
4.8-16 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB7D (Preferred Alternative)	261
4.8-17 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB7E	262
4.8-18 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB8A.	263
4.8-19 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB8B	263
4.8-20 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB9A	264
4.8-21 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB9B	264
4.8-22 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB10A	265
4.8-23 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB10B	265
4.8-24 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB11A	266
4.8-25 Predicted Costs of Mitigation Methods to Reduce Seabird Interactions in the Hawaii-based Longline Fishery Under Alternative SB11B	267
4.11-1 Comparison of Agency Guidelines for Methylmercury Intake	297

4.12-1 Summary Comparison of Seabird Action Alternatives	303
6.2-1 Scoping Meeting Schedule	314
6.2-2 Evaluation of Scoping Issues for Inclusion in this EIS	315
6.2-3 Evaluation of the Effects of Possible Management Actions for the Seabird and Squid Actions Using the Criteria of NOAA Order 216-6	320
6.3-1 Responses to Comments on the DEIS.	337

List of Figures

1.2-1 The U.S. EEZ in the Pacific Islands Region	6
2.1-1 Schematic of a Tori Line Used in the Alaska Demersal Longline Fishery	53
2.1-2 Stern-and Side-setting Deck Positions	58
3.6.1-1 Counts of Short-tailed Albatross Adults, Eggs and Fledglings on Torishima Between 1947 and 2003	121
3.6.1-2 Counts of Black-footed Albatross Breeding Pairs at French Frigate Shoals, Midway Atoll and Laysan Island, NWHI for Years 1992 to 2004	125
3.6.1-3 Counts of Laysan Albatross Breeding Pairs at French Frigate Shoals, Midway Atoll and Laysan Island, NWHI for Years 1992 to 2004	127
3.6.1-4 Abundance of Black-footed Albatrosses (top map) and Laysan Albatrosses (bottom map) Around Hawaii Longline Vessels During Fishing Operations	141
3.6.1-5 Estimated Annual Total Incidental Catch of Albatrosses in the Hawaii Longline Fishery (1994-2003)	144
3.6.1-6 Observed Interactions of Black-footed Albatrosses (top) and Laysan Albatrosses (bottom) Between 1994-1999 in the Hawaii Longline Fishery	146
3.6.1-7 Observed Interactions of Black-footed Albatrosses (top) and Laysan Albatrosses (bottom) Between August 25, 2000 and March 31, 2001, in the Hawaii Longline Fishery	149
3.6.1-8 Observed Interactions of Black-footed Albatrosses (top) and Laysan albatrosses (bottom) From July 1, 2001 to July 4, 2004 in the Hawaii Longline Fishery	150
3.7-1 Estimated Hawaii Recreational Private Boat Catch of Pelagic Species by Number of Fish, 2002	167
3.7-2 Estimated Hawaii Recreational Private Boat Catch of Pelagic Species by Weight of Fish, 2002	168
3.7-3 Annual Squid Catch in the Southwest Atlantic and Northwest Pacific Ocean, 1950-2000	185
3.7-4 Annual Squid Catch in the Southeast Pacific Ocean, Southwest Pacific Ocean, Western Central Pacific Ocean, Eastern Central Pacific Ocean, Eastern Indian Ocean and Northwest Atlantic, 1950-2000	185
4.5-1 Seabird Alternatives Ranked by Projected Number of Interactions	242
4.5-2 Cumulative Projected Seabird Interactions by Tuna and Swordfish Vessels Under the Seabird Alternatives	242

List of Acronyms and Abbreviations

°C	Degrees Celsius	HLA	Hawaii Longline Association
BiOp	Biological Opinion	HMS	Highly Migratory Species
BW	Body Weight	HSFCA	High Seas Fishing Compliance Act
CCL	Curved Carapace Length	IATTC	Inter-American Tropical Tuna Commission
CEQ	Council on Environmental Quality	IMO	International Maritime Organization
CI	Confidence Interval	ISC	Interim Scientific Committee
CITES	Convention on International Trade in Endangered Species	IUCN	International Union for Conservation of Nature and Natural Resources
cm	Centimeters	IWC	International Whaling Commission
CM	Current Seabird Interaction	kg/hr	Kilograms per Hour
CNMI	Avoidance Measures	km	Kilometer
	The Commonwealth of the Northern Mariana Islands	Kt	Kiloton
CPUE	Catch-Per-Unit-Effort	lb	Pound
CRE	Coral Reef Ecosystem	m	Meter
CV	Coefficients of Variation	MARPOL	International Convention for the Prevention of Pollution from ships
DAWR	Division of Aquatic and Wildlife Resources (Guam)	MHI	Main Hawaiian Islands
DDT	Dichlorodiphenyltrichloroethane	ML	Mantle Length
DFW	Division of Fish & Wildlife (CNMI)	mm	Millimeter
DHA	Docosahexaenoic Acid	MBTA	Migratory Bird Treaty Act
DMWR	Department of Marine and Wildlife Resources (American Samoa)	MMPA	Marine Mammal Protection Act
DNA	Deoxyribonucleic Acid	MPAs	Marine Protected Areas
E	East	MPPRCA	Marine Plastic Pollution Research and Control Act
EEZ	Exclusive Economic Zone	MSA	Magnuson-Stevens Fishery Conservation and Management Act
EFH	Essential Fish Habitat	MSY	Maximum Sustainable Yield
EIS	Environmental Impact Statement	mt	Metric Ton
EO	Executive Order	mtDNA	Mitochondrial Deoxyribonucleic Acid
EPO	Eastern Pacific Ocean	N	North
ETPO	Eastern Tropical Pacific Ocean	NEPA	National Environmental Policy Act
FADs	Fish Aggregating Devices	nm	Nautical Mile
FAO	Food and Agriculture Organization (United Nations)	NMFS	National Marine Fisheries Service
FDA	Food and Drug Administration (U.S.)	NOAA	National Oceanic and Atmospheric Administration
FEIS	Final Environmental Impact Statement	NOI	Notice of Intent
FFA	Forum Fisheries Agency	NS	Night-setting
FFC	Forum Fisheries Committee	NWHI	Northwestern Hawaiian Islands
fm	Fathom	OFP	Oceanic Fisheries Program
FMP	Fishery Management Plan	OY	Optimum Yield
FR	Federal Register	PCBs	Polychlorinated Biphenyls
FSM	Federated States of Micronesia	PFADs	Private Fish Aggregating Device
ft	Foot/feet	PICES	North Pacific Marine Science Organization
g	Gram	PIFSC	Pacific Islands Fishery Science Center, NMFS
HAPC	Habitat Area of Particular Concern	PIRO	Pacific Islands Regional Office, NMFS
HDAR	Hawaii Division of Aquatic Resources		

PMUS	Pelagic Management Unit Species
PNG	Papua New Guinea
POPs	Persistent Organic Pollutants
ppm	Parts per Million
PRIA	Pacific Remote Island Area
RPA	Reasonable and Prudent Alternative
S	South
SAFZ	Subarctic Frontal Zone
SARS	Severe Acute Respiratory Syndrome
SATZ	Subarctic Transition Zone
SCL	Straight Carapace Length
SCTB	Standing Committee on Tuna and Billfish
SEAFDEC	Southeast Asian Fisheries Development Center
SEIS	Supplemental Environmental Impact Statement
SEM	Scanning Electron Microscopy
SFA	Sustainable Fisheries Act
SOD	Strategic Offal Discard
SPC	Secretariat of the Pacific Community
SPTT	South Pacific Tuna Treaty
SS	Side-set
SST	Sea Surface Temperature
SWFSC	Southwest Fisheries Science Center
TBDB	Thawed, Blue Dyed Bait
TBDF	Thawed, Blue Dyed Fish
TBDS	Thawed, Blue Dyed Squid
TCDD	Tetrachlorodibenzo-para-dioxin
TL	Tori Line
TZ	Transition Zone
U.S.C.	United States Code
USC	Underwater Setting Chute
UN	United Nations
U.S.	United States
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
VMS	Vessel Monitoring System
W	West
WCPO	Western and Central Pacific Ocean
WpacFIN	Western Pacific Fisheries Information Network
WPFMC	Western Pacific Fishery Management Council
WPRFMC	Western Pacific Regional Fishery Management Council